



# ***MODLAND Validation Overview***

## **Coordination of field campaigns**

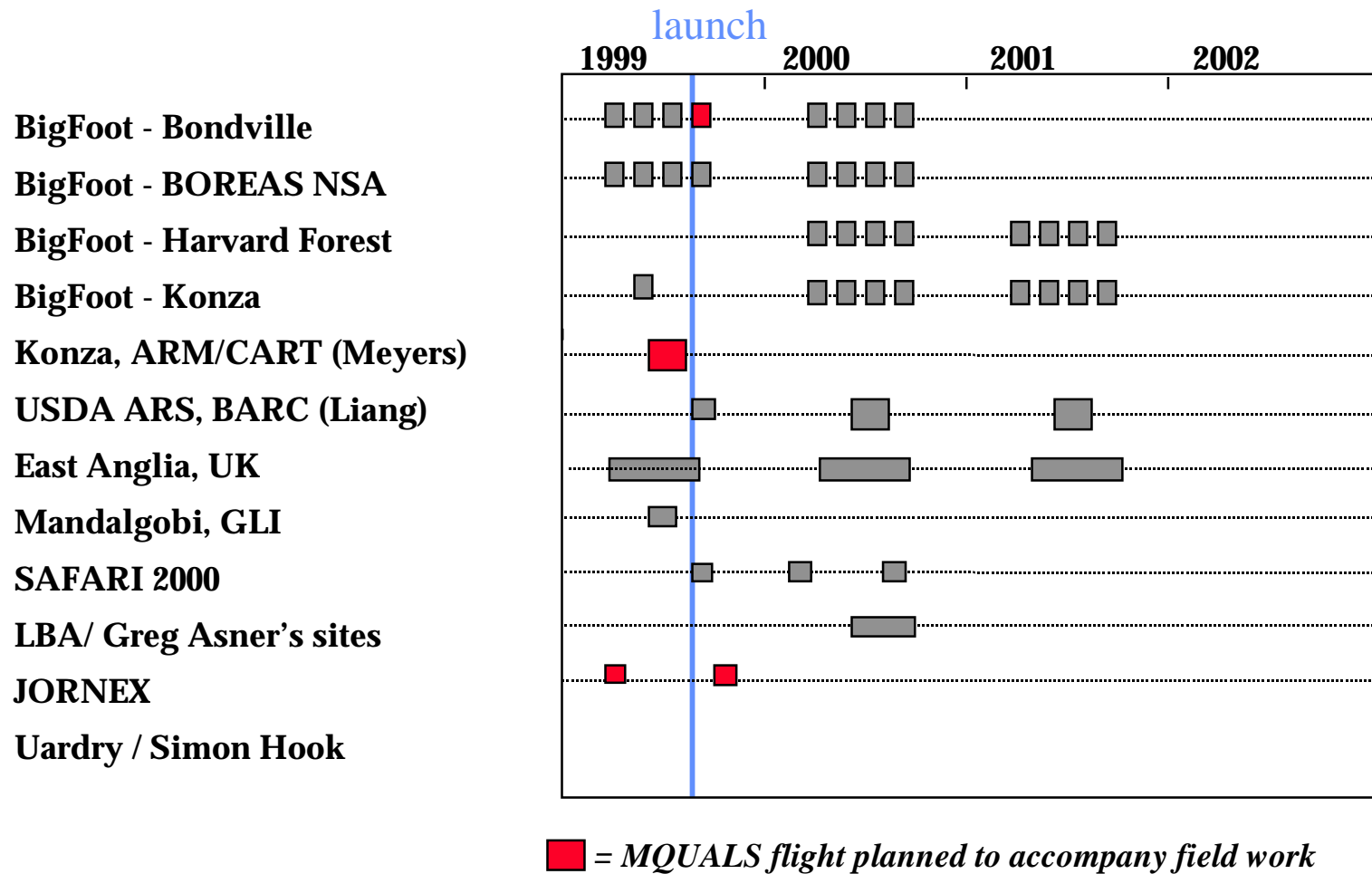
- MODLAND/MQUALS sites
- EOS Investigations
- SAFARI 2000
- ER-2 requests

## **Core Site activity**

- Historical data collection
  - Ancillary data
  - Mercury system
  - Satellite data archive
  - MODIS subsets
  - Science Data Buy
- } Internet Access



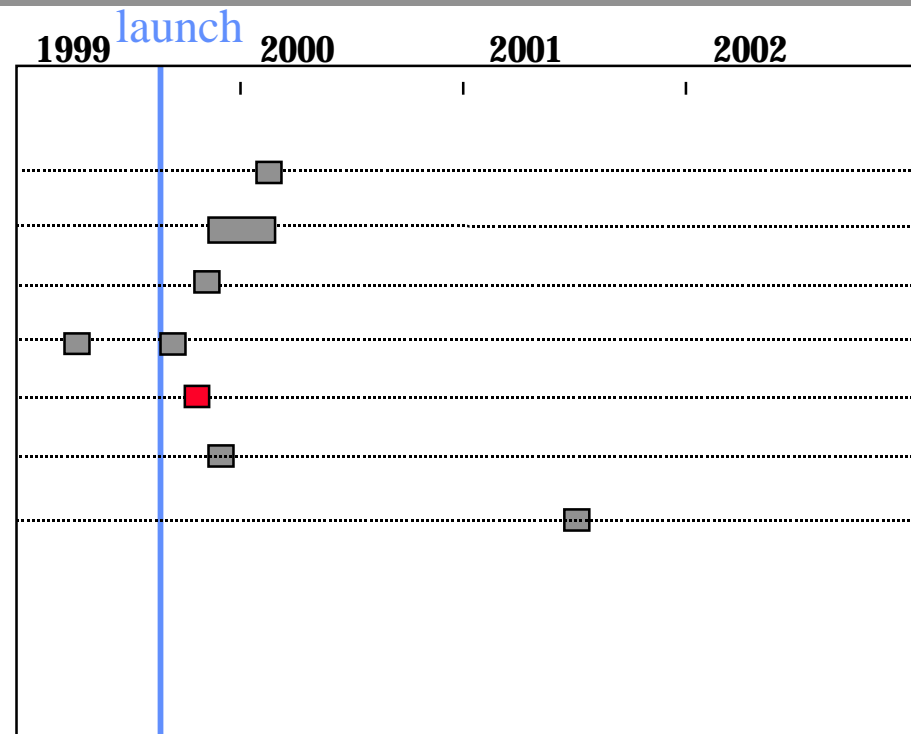
# Core Site Validation Campaigns





# Currently Planned MODIS-related Campaigns

SAIMM (Snow and Ice, Hall)  
 Sea Ice (Li & Hall)  
 Tibet (Wan, pending)  
 CALWEST (Wan)  
 Railroad Playa (Thome & Huete)  
 SCAR '99 (Remer & Justice)  
 CERES Fire in CA (MODLAND  
 Fire?)  
 (Jiancheng Shi)  
 (Phil Tiellet)



■ = MQUALS flight planned to accompany field work



## ***ER-2 Requests for 2000***

- Official ER-2 request currently available, **due 4 June 1999**.  
<http://www.dfrc.nasa.gov/Projects/airsci/general/SciProg/home.html>
- MODLAND compilation sent to EOS Validation office describing:
  - SAFARI 2000, Snow/Ice, and LST requests
  - noted our interest in knowing of other land related flights and our willingness to provide procedural input and assist with field measurement and instrumentation.
- EOS Validation is finalizing their compilation of EOS ER-2 requests to help "encouraging collaboration and consolidation where it makes sense".
- Carry-over flight and budgeting should probably be considered in May.

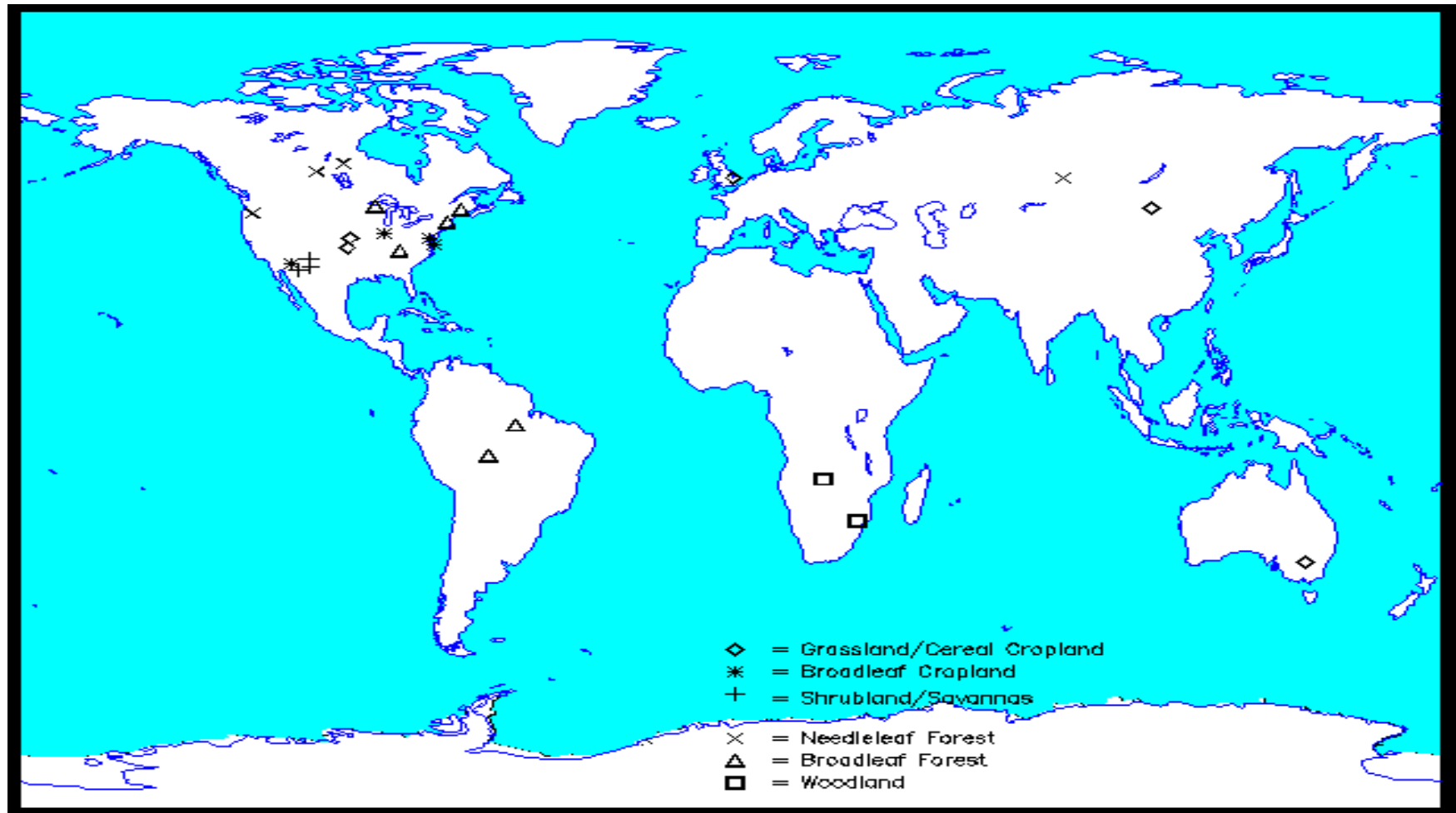


## *Core Sites by Biome*

<b>Grassland / Cereal Crop</b>	<b>Shrubland / Woodland</b>	<b>Broadleaf Cropland</b>	<b>Broadleaf Forest</b>	<b>Needleleaf Forest</b>
ARM/CART OK	Jornada LTER NM	BARC MD	Harvard Forest LTER	Boreas NSA Canada
Konza LTER KS	Mongu Zambia	Barton Bendish UK	Ji Parana Brazil	Boreas SSA Canada
Mandalgobi Mongolia	SALSA AZ & Mexico	Bondville IL	Tapajos Brazil	Cascades, OR (H.J. Andrews LTER)
Sevilletta LTER NM	Skukuza South Africa	Maricopa Ag. Center, AZ	Walker Branch TN	Howland ME
Uardry Australia		VA Coastal Reserve LTER		Krasnoyarsk Russia
				Wisconsin LTER

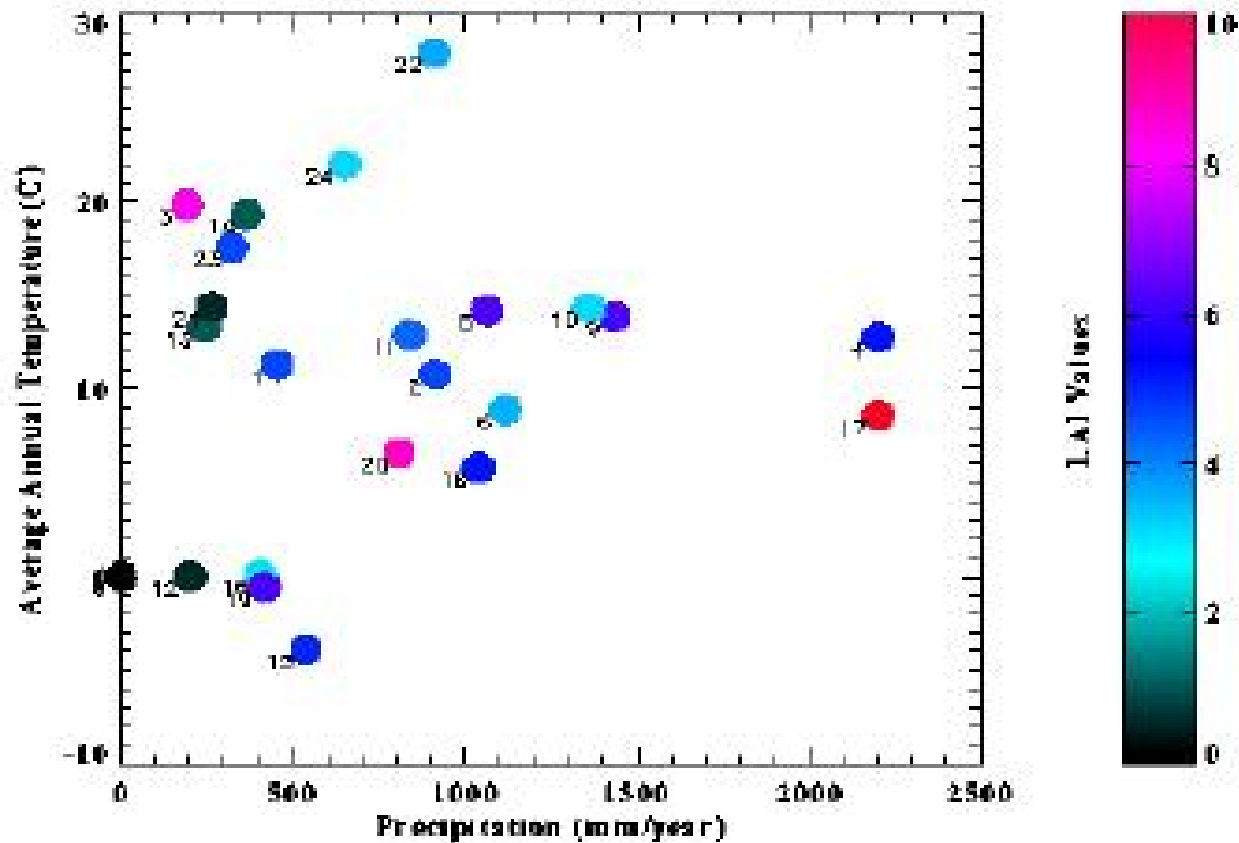


# *EOS Core Site Map*





## *Core Site Max. LAI in Meteorological Space*





# MODIS Product Validation vs Core Sites

Product/ Site Name	Harvard Forest	Ji-Parana	Tapajos	Walker Branch	Barton Bendish	Bondville, IL	Maricopa Ag.	USDA ARS	VCR	ARM/CART	Konza Prairie	Sevilleta LTER	Uardry	Mandolgobi	BOREAS, NSA	BOREAS, SSA	Cascades LTER	Howland	Krasnoyarsk	Wisc.LTER/Park Falls	Jomada LTER	Mongu	SALSA	Skukuza
Surface Reflectance				1				1	1	1	1			1				1				1		1
Albedo/BRDF	1				1			1		1	1			1				1				1		1
LST																				1				
VI														1								1		1
LC - BU																								
LC, LCC - Umd																								
Fire/Burn																						1		1
Snow/Ice																1								
LAI/FPAR			1		1	1				1	1			1	1		1			1	1	1	1	1
PSN/NPP				1		1					1			1	1									
	Bigfoot (Cime!?)		Asner	Baldocchi?	Bamsley	Bigfoot, Meyer		Liang		Walter-Shea	BigFoot, Meyer	Shore	Hook	Honda	Bigfoot/CCRS	Shi, BERMS(?)	Law, Cohen(?)		Deering	Gower	Asner	Privette	Ji, Pinker	Privette



# *Mercury System*

- Successfully tested to harvest meta data from
  - Password protected ftp site with Global Land Cover Test Sites (GLCTS) at EDC,
  - DyCam images at GSFC, and
  - MQUALS data at UA.
- Password protection: files can be protected, but the html files that contain the meta data must be in a directory that can be reached without password protection.



## ***EOS Satellite Data***

- EDC will provide validation support for storage and access of ETM+, ASTER, and MODIS subsets
- EDC's ftp directories have been set up with GLCTS data for Konza, ARM/CART, and Harvard Forest Sites
- Access to any directory with GLCTS will require a "US Government Affiliated User" form on file with EDC
- ETM+ data will start to become available in June and will be ordered, with support from EDC, through ECS based on *combined* input from MODLAND PIs and site investigators
- ASTER, also ordered through ECS, will require the most processing steps, thus the most user input. MODLAND may want to consider a standard product for all Core Site ASTER requests.
- MISR "Local Mode" data will be acquired over Core Sites but no special provision yet established for storage and access



## *Historical Data Collection*

Referenced historical data for key modeling parameters, resulting in web based documentation and data

- Organized and facilitated by ORNL DAAC
- Focusing on Core Sites
- Prioritized list of parameters and sites from MODLAND to ORNL, based on survey to Terra instrument teams and EOS validation investigators (3 respondents)

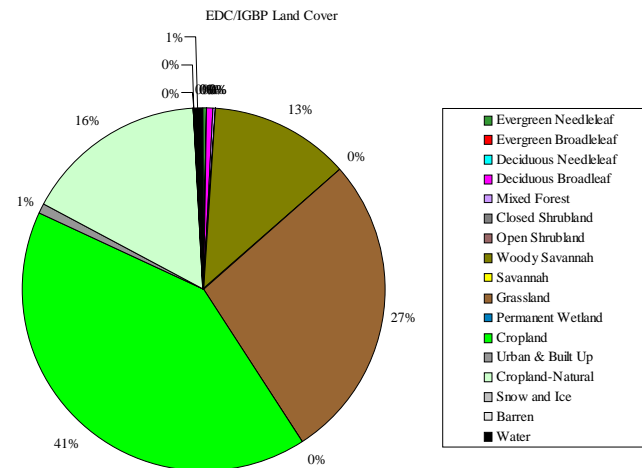
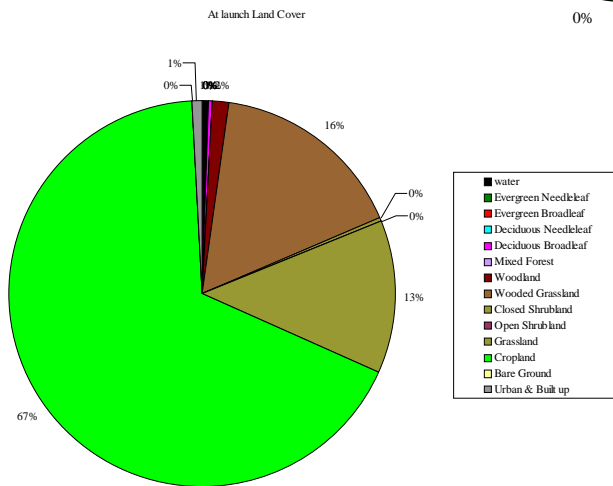
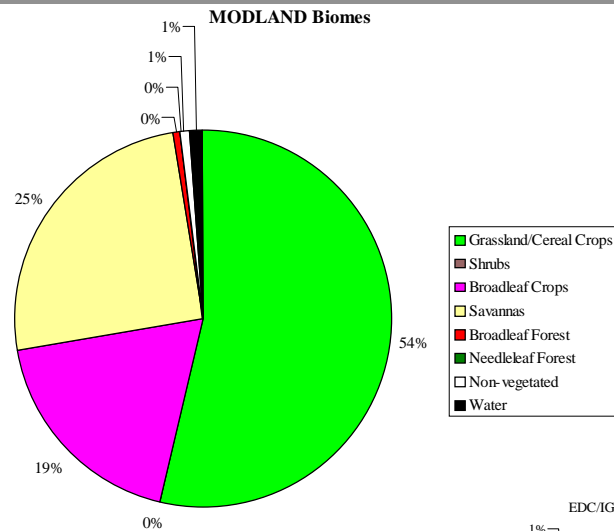


## *Ancillary Data*

- Compiled by Commercial Remote Sensing for Earth System Science (CRESS) program
  - UMD at-launch land cover
  - EDC/IGBP land cover
  - MODLAND biome map
  - Soils,
  - Elevation,
  - Population and
  - Reference layer (TM footprint, waterways, municipal boundaries)
  - UMD “Continuous Fields” products will be added
- Clipped for 200km x 200km area centered on Core Sites
- Web based “report” for each Core Site
- Related GEOTiffs stored at UMD Global Land Cover Facility (GLCF)



# *Example Ancillary Data: Land Cover at Konza*





# *Science Data Buy*

## **Strategy:**

- Working with SDB program and CRESS to develop the capacity for SDB to accept program level requests - this will be considered at their next quarterly meeting, May 28.
- Once capacity is established, request will be submitted for the Core Site, SAFARI 2000, continuous fields transects, and land cover conversion “events”

## **SDB data:**

- “IKONOS 2” planned for December 1999 launch
- Positive System data being considered in lieu of IKONOS data
- EarthSat precision geocoded scene will be incrementally available over the next several months - starting with Africa, then Eastern U.S., then South America

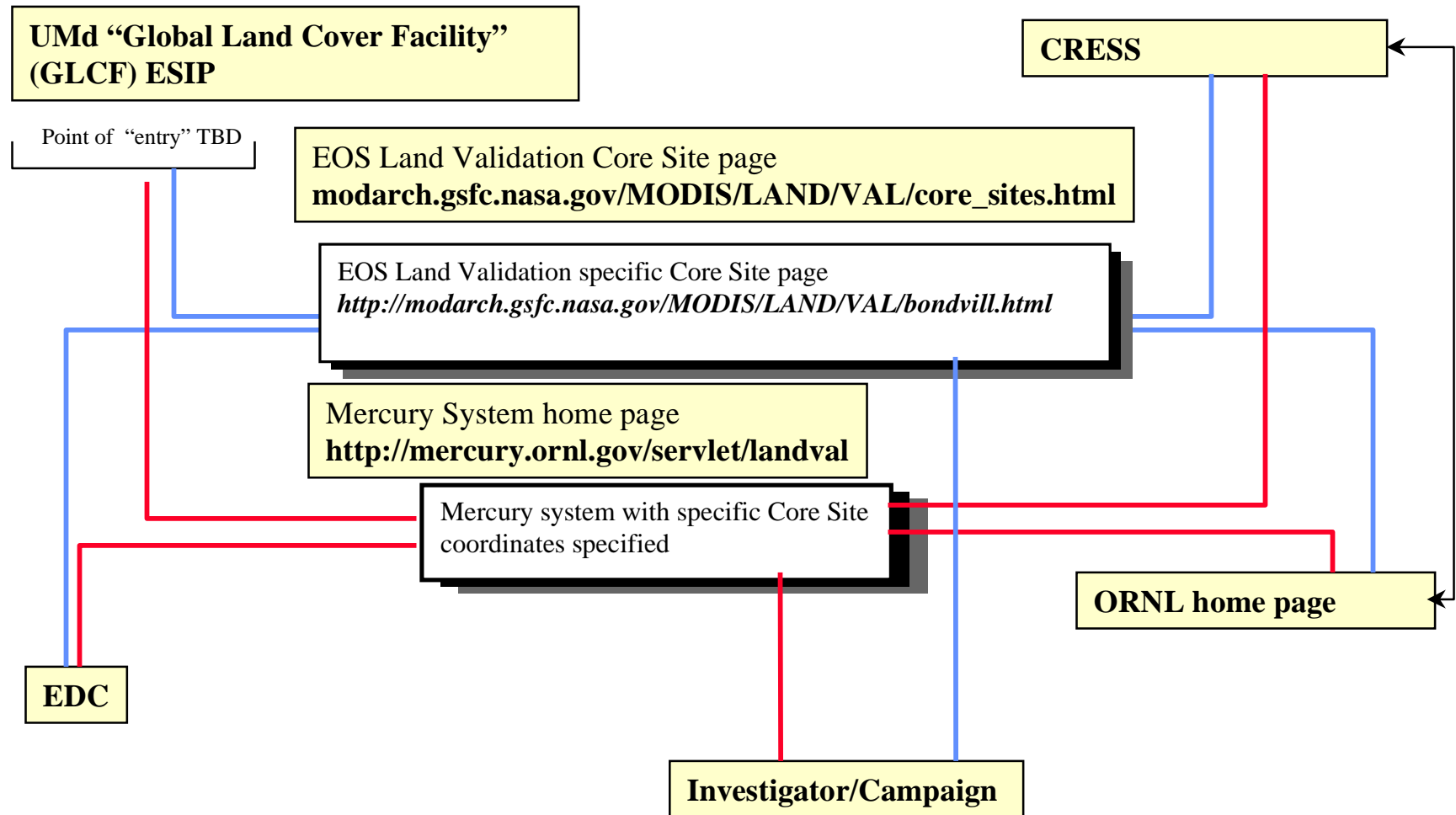
*(schedule for remaining areas TBD)*



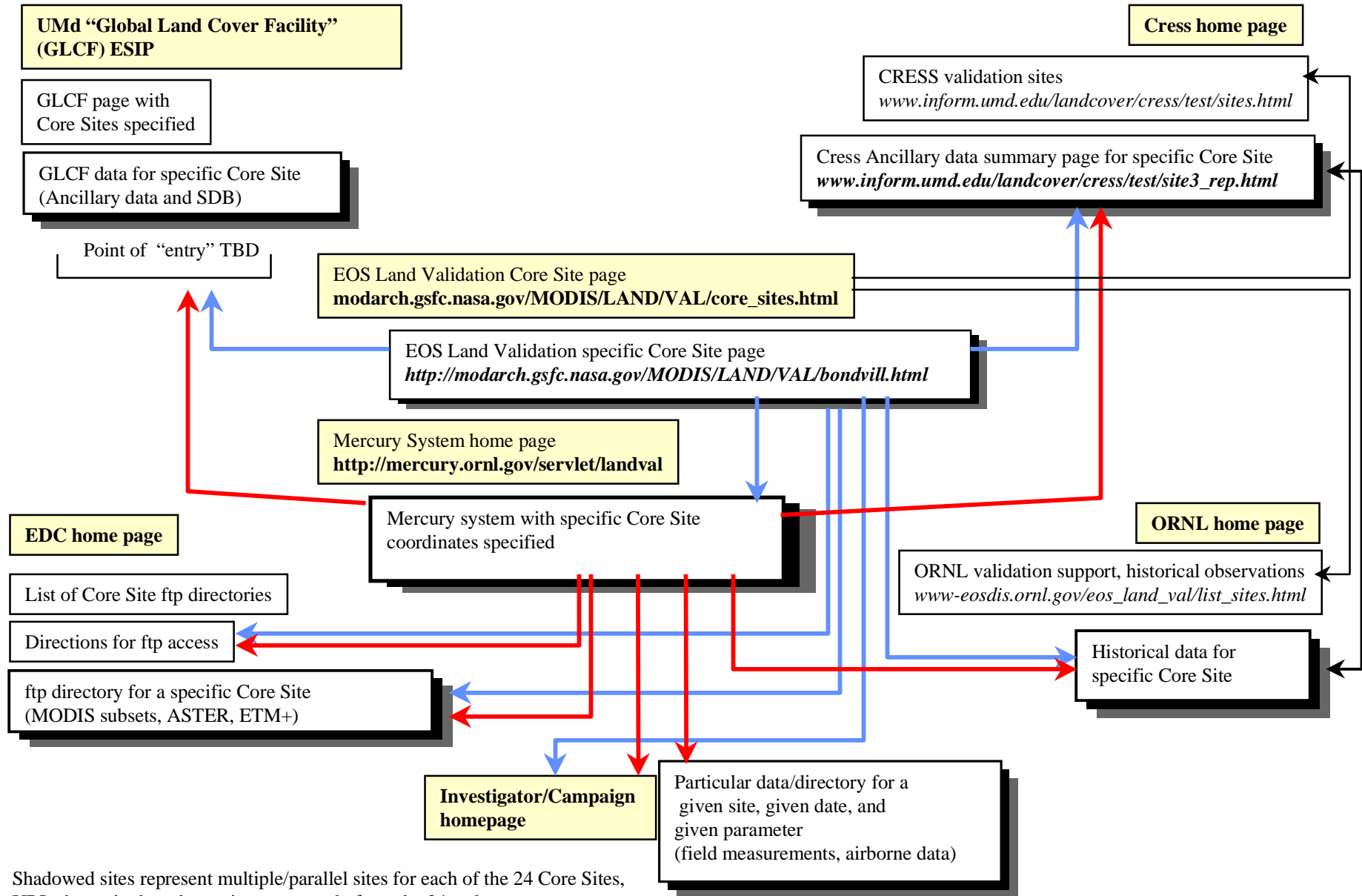
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<b>EDC</b>																								
GLCTS - general																								
GLCTS - ftp access																								
ETM+																					?			
Ancillary report (CRESS)																								
Ancillary data (GLCF)																								
MODIS Subsets																								
MQUALS - 1999																								
Historical data																								
Priority for 1999																								

# Internet links for Core Site Information



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Shadowed sites represent multiple/parallel sites for each of the 24 Core Sites, URL shown in these boxes is one example from the 24 web pages



## *Open Questions*

- Analysis and reporting of validation results
  - MODLAND participation with, and planning for, 1st and 2nd Cal/Val workshop (L+130days, L+7 month)
  - data access and early validation results meeting in Aug.-Oct. timeframe
  - standard product-related protocol
  - standard “product uncertainty” reporting
- Validation plans for urban areas (in particular, with respect to the biophysical products)



## ***Validation Background***

"EOS Land Validation Coordination: An Update", Justice et al., Earth Observer, 1998, v.10, n. 3, p.55-60.

"Global Validation of EOS LAI and FPAR Products", Privette, et al., Earth Observer, 1998, v.10, n. 6, p. 39-42.

"A Light Aircraft Radiometric Package for MODLAND Quick Airborne Looks (MQUALS)", Huete et al., Earth Observer, 1999, v11, n.1

"EOS Global Land Validation Network", Privette, et al. IGARSS'99 Proceedings.

"The Prototype Validation Exercise (PROVE) for EOS Land and Atmosphere Products", Privette et al. IGARSS'99 Proceedings

Core Site web page:

[http://modarch.gsfc.nasa.gov/MODIS/LAND/VAL/core\\_sites.html](http://modarch.gsfc.nasa.gov/MODIS/LAND/VAL/core_sites.html)